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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/811,628

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Tapesh Yadav

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FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

LE, HOA T

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1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/811,628	Applicant(s) YADAV ET AL.	
	Examiner H. T. Le	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 4,6-18,24-27,29-32 and 35-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,19-23,28,33,34,43 and 44 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

2. Applicant's election with traverse of the election of claims 1-3, 5, 21, 22, 23, 28, 22 and 34 in the reply filed on December 12, 2007 is acknowledged. The traversal is on the ground(s) that there is no serious burden as the present claims were previously examined. This is not found persuasive because the claims have been extensively amended and new claims are added that require substantial further search and consideration if all claims are examined. In addition, the fact that, some references that originally were applicable to all claims and now could only be applicable to some claims, indicates that there are diverse subject matters creating serious burden if all claims are examined.

The requirement is still deemed proper and is therefore made FINAL.

3. It should be noted that claims 19, 20, 43 and 44 are considered generic; therefore, they will be examined along with the elected claims. Therefore, claims 1-3, 5, 19-23, 28, 33, 34, 43 and 44 are being considered. Claims 6-18, 24-27, 29-32 and 35-42 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

Claim Status Identifiers

4. Currently, some of the claims are not correct identified. Some of the withdrawn claims are shown as "Original" or "Currently Amended" and some of the elected claims

are indicated as "Withdrawn". In the forthcoming response, Applicant is required to correct the claim status identifier. Failure to do so will render the amendment non-compliant, and no examination will be given until correction to the claim status is made.

Specification

5. The disclosure is objected to because of the following informalities:

5.1. The specification fails to reflect the current status of the parent applications. The Patent Application No. 10/449,278 has matured to a Patent No. 6,830,832 which is not reflected in the specification. Similarly, the specification fails to indicate that the Patent Application No. 09/790,036 is now Patent No. 6,933,331. Appropriate correction is required.

5.2. The provisional application No. 60/111,442 (paragraph [0001]) and 60/069,936 (paragraph [0002]) are queried. 60/111,442 is directed to a diet supplement based on garlic extract while 60/069,936 is entitled "Autofog nozzle". None of them has anything to do with the present claimed subject matter. Correction or verification is required.

Claim Rejections - 35 USC § 112

6. **Claims 1-3, 5, 19-23, 28, 33, and 34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.** The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 1794

The examiner is aware of the paragraph [0061] where the term “nanopowders” is stated to include all powders with an aspect ratio from 1 to 10^6 . However, nowhere in the specification is described how a nanomaterial with an aspect ratio larger than 2 can be obtained. The only type of nanostructure where an aspect ratio of up to 25 is obtained is a polymetallic nanomaterial, not just any nanomaterial, let alone chalcogenide or non-stoichiometric chalcogenide material. The only material that is associated with the description of an aspect ratio of up to 25 is polymetallic. See instant specification, paragraphs [0090], [0093], and [0096]. Therefore, the specification does not describe a method for making chalcogenide nanomaterials having an aspect ratio greater than 5 as claimed.

7. Claims 1-3, 5, 19-23, 28, 33, and 34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

7.1. Although the specification describes a method of making polymetallic material having an aspect ratio of up to 25 (paragraphs [0090], [0093], and [0096]), such method is not described to extend to chalcogenides in terms of aspect ratio. How the same method can be applied to chalcogenides to obtain an aspect ratio of greater than 5 is not described. Chalcogenides and polymetallic materials are two chemically and physically different materials. Therefore, a method that is successful in making one material of certain morphology cannot be used to produce the other with the same

Art Unit: 1794

morphology. The specification fails to describe how that can be done, and thus the claims are based on a non-enabling disclosure.

7.2. More particularly, the method of making non-stoichiometric materials as described at paragraphs [0120] to [0129] can not be resulted in a structure wherein the aspect ratio is at least 5. The method as disclosed in these paragraphs does not enable one of skilled in the art to control or manipulate the production conditions such that an aspect ratio of greater than 5 can be resulted for non-stoichiometric.

8. Claims 1-3, 5, 19-23, 28, 33, and 34 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an aspect ratio of less than 25, does not reasonably provide enablement for greater than 5 for reasons set forth in the last office action and further discussed below.

8.1. Examiner's Note: This rejection is assuming that the specification provides support for chalcogenides having an aspect ratio of up to 25 while such aspect ratio is actually only enabled for polymetallic nanomaterials (see paragraphs 6-7 above).

8.2. Applicant argued that "at least some numbers that are less than 25 are also 'greater than 5'". While up to 25 may provide support for greater than 5 and up to 25, it does not provide support for just greater than 5 because greater than 5 without an upper limit includes greater than 25 which is not supported by the present specification.

Claim Rejections - 35 USC § 102

9. Examiner's Note:

The present application is entitled only to the filing date of the Application No. 10/449,278, which is May 30, 2003. "A claim in a continuation-in-part application recites a feature which was not disclosed or adequately supported by a proper disclosure under 35 U.S.C. 112 in the parent nonprovisional application, but which was first introduced or adequately supported in the continuation-in-part application, such a claim is entitled only to the filing date of the continuation-in-part application." In re Chu, 66 F.3d 292, 36 USPQ2d 1089 (Fed. Cir. 1995); Transco Products, Inc. v. Performance Contracting Inc., 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994); In re Van Lagenhoven, 458 F.2d 132, 136, 173 USPQ 426, 429 (CCPA 1972); and Chromalloy American Corp. v. Alloy Surfaces Co., Inc., 339 F. Supp. 859, 874, 173 USPQ 295, 306 (D. Del. 1972). See MPEP 1701. Here, the only earlier filed application that describes nanomaterials having an aspect ratio of up to 25 is the parent application No. 10/449,278 filed May 30, 2003 (now US Patent No. 6,830,822). None of the other earlier filed applications describes or provides support for the subject matter as now claimed (i.e. aspect ratio of greater than 5). Therefore, claims of the present application are entitled only to the filing date of the Application No. 10/449,278, which is May 30, 2003.

Additionally, none of the provisional applications describes or discloses any aspect ratio for the nanomaterials. Furthermore, the provisional applications 60/111,442 and 60/069,936 are questionable. The former is related to a diet

supplement based on garlic extract while the latter is entitled "Autofog nozzle". None of them has anything to do with the present claimed subject matter

10. Claims 1-3, 5, 19-23, 28, 33, and 34, 43 and 44 are rejected under 35 U.S.C. 102(b) or (e) as being anticipated by Bickmore et al (US 5,984,997).*

Bickmore teaches a method of making nanowhiskers and/or nanorods of chalcogenides with aspect ratios in a range of 1-25 (see col. 2, lines 20-29 and 65-67). The nanomaterials include non-stoichiometric chalcogenides (col. 2, lines 30-37). S-, Se-, and Te-containing chalcogenides are suggested at col. 3, lines 65-67 and col. 6, lines 23-31.

11. Claims 43 and 44 are rejected under 35 U.S.C. 102(a) or (b) as being anticipated by various articles as provided in the previous office actions.

11.1. The Schooman article ("Nanostructured materials in solid state ionics").

The Schooman article discusses Maya blue paint, which is a nanomaterial made by ancient Native Americans. Nanoparticles with aspect ratio of larger than 2 are discussed and reviewed at page 7, left column, last two paragraphs.

11.2. The Xin article ("Formation of self-assembling CdSe quantum dots on ZnSe by molecular beam epitaxy').

The Xin article teaches chalcogenide-containing nanoparticles, i.e. ZnCdSe/ZnSe quantum dots having an aspect ratio of 4. See abstract.

11.3. Jose-Yacaman et al.: ("Maya Blue Paint: An Ancient Nanostructured Material").

See page 224, last two paragraphs: needle shaped crystallites indicate an aspect ratio of greater than two.

11.4. Kian Ping Loh et al. ("Growth of boron nitride nanotubes and iron nanowires from the liquid flow of FeB nanoparticles").

At page 5, left column, Loh et al disclose a well-faceted of Fe. And nanotubes and nanowires by definition are nanomaterials with an aspect ratio of at least two.

11.5. Liu et al. ("Synthesis of GaP nanowires with Ga₂O₃ coating").

Nanowires suggest an aspect ratio of larger than two.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511.

The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

* 102(b) as the effective filing date only goes back to May 30, 2003 as stated in the Examiner's Note. And 102(e) if otherwise: the Bickmore patent claimed a provisional application benefit back to August 29, 1997.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. Thi Le/
H. (Holly) T. Le
Primary Examiner
Art Unit 1794

April 11, 2008